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## ZOOLOGY.

**Parthenogenesis among the Acari of Feathers.**—In a communication to the Entomological Society of France, Dr. Trouessart states that he has observed a parthogenetic manner of reproduction in the plumicolous Sarcoptidæ under such conditions as to preclude the possibility of mistake. In 1888 Dr. Trouessart described an Acarian, *Syringobia chelopus*, which is found in the tubes of the feathers of *Totanus calidris*, a bird of passage through France in the Spring and Fall. A study of the life history of this species has developed the following facts.

In the Spring little colonies of the Acarian are found in the tubes of the feathers of the migrating wader, evidently having wintered in those narrow quarters feeding on the pith of the feather. Their numbers are small rarely exceeding ten or twelve in each colony. The composition of the colonies is variable, but taking 25 or 30 of the principal feathers of the wing together there will be found the following eleven forms. (1) Eggs with a shell; (2) Naked eggs; (3) Normal larvæ; (4) Abnormal larvæ; (5) Normal nymphs; (6) Abnormal nymphs; (6) Sexually developed females or secondary nymphs; (9) Abnormal females; (10) Normal males or *heteromorphs*; (11) Abnormal males or *homeomorphs*. All of the forms are not found together in the same feather. The normal form and the abnormal form (which I have called *syringobia*) live in separate feathers, and the naked egg belongs to the latter form. The males in the abnormal series are very rare, only one or two for one hundred females in that series; while in the normal series the proportion is one male to three females. Neither normal males or eggs with a shell are found with the syringobial females. These lay naked eggs covered only with the thin hyaline membrane which forms the inner covering of the shelled eggs.

In a general way the syringobial form, is distinguished from the normal by its large cheliceres and by the thin, transparent skin over the posterior part of the body. The syringobial female is larger and more elongate than the normal type.

The skin left after the final moult, which transforms the syringobial nymph into an adult female, is totally wanting in the post-anal opening which corresponds to the copulatory pouch and which is perfectly plain in the secondary normal nymph or sexually developed female.

The life-history as traced by Dr. Trouessart proceeds as follows:

At the time of the autumn moult which preceeds the departure of the birds for the warm countries a certain number of young larvæ or nymphs of *Syringobia* penetrate the tube of the feather through the *ombilic supérieur*. Three or four are thus installed in each feather. If there is one or more males in the colony the development is normal, and the fertilized females lay shelled eggs. On the contrary, if there are no males, the female nymphs having attained the age of the secondary nymph, instead of being transformed into normal females continue growing until the body is nearly double the size of the normal secondary females, assuming more and more the characters of the syringobial form; then they undergo a final moult and are transformed into parthenogenic females laying eggs without shells. From these eggs are developed larvæ, which reproduce the parthenogenetic form during the migration of the bird. At the end of the journey, either immediately or during the stay in the warm region, the young issue from the two series (the normal egg and the parthenogenic egg), leave the interior of the feather and make their home on the plumage. In fact, *Syringobia* is found on the plumage of birds killed in the warm countries, but they are found in the feather only during migration.

Parthenogenesis, in this case, according to Dr. Trouessart is the result of the segregation of individuals and the death of males. It is probable that this phenomenon is more frequent in this group than has been hitherto supposed. (Bull. Soc. Entomol. Paris, 1894.)

**Trionyches in the Delaware drainage.**—Turtles of this family have been supposed to be absent from the Delaware drainage, but the two following instances show that this view is no longer tenable. In the latter part of August a specimen of the "soft shelled turtle" was captured in the Paulins Kill at Hainesburg, Warren, Co., N. J. and sent to the museum of the Wagner Institute by Mr. E. B. Allen. The mounted specimen measures as follows: Total length 18 inches. Length of carapace 12 inches, width 9 inches. Length of plastron 8 inches. The tough integument has shrunk somewhat and its true measurements exceeds these by about one inch. Color a dark brown, with black spots, many of these ocellate, under surface white, feet dark yellow irregularly marked with black.—CHAS. W. JOHNSON.

NOTE ON THE ABOVE—Two individual Trionychidæ were captured in a pond near Woodbury, N. J. about a year ago, and are now living in captivity. I have not seen them, but there is no doubt as to the fact.—E. D. COPE.

**The Femoral Gland of Ornithorhynchus and Its Secretions.**—At the July meeting of the Linnean Soc. N. S. W. a paper on the secretions of the femoral gland of the Ornithorhynchus was presented by C. J. Martin and F. Fildswell. The paper contained also notes of an experimental enquiry concerning the toxic action of these secretions.

The gland is described as belonging to the compound racemous variety with large alveoli possessing a wide lumen, and somewhat recalling the appearance of a mammary gland. The alveoli communicate with ducts which eventually join at the hilus of the gland to form the duct leading to the spur.

The gland is surrounded by a capsule of fibrous tissue, exterior to which is a thin layer of smooth muscle fibres. A marked difference in the minute structure of the gland was noted in animals killed in June and those in April respectively, the former showing the appearance characteristic of an actively secreting gland, whereas the latter suggested that of a mammary gland when it had undergone retrogressive metamorphosis.

Examination of the poison showed it to consist principally of albuminous bodies, and the introduction of these into rabbits produced very marked poisonous results. When injected under the skin, local swelling and general depression and rise of temperature followed, but in three days the animal was well again. When the poison was introduced directly into the vascular system, small quantities ( $\frac{1}{4}$  grain) caused death in under half an hour. Larger doses so introduced produced almost immediate death, by producing nearly universal clotting of the blood whilst travelling in the blood vessels. Such clotting naturally soon put an end to all circulation.

In summing up, the authors compare the action of Ornithorhynchus poison with that of the venous of Australian snakes, supposing the latter to be diluted 5000 times. (Nature, Sept., 1894.)

**Change of Color in the Northern Hare.**—From the study of 75 specimens of *Lepus americanus* collected for the express purpose of investigating the seasonal change of color, Mr. J. A. Allen arrives at the following conclusions:

- (1) The change of color, both in autumn and in the spring, is due to change of pelage, and not to a change in the hair itself.
- (2) The change is gradual, occupying many weeks.
- (3) The method of change, as regards the parts first affected is the reverse in spring in the order characterizing the autumnal change.

(4) In the early part of spring, after the white overhair has been shed, the pelage consists of the heavy coat of soft winter underfur. This gradually disappears as the summer coat thickens.

(5) In spring the moult occurs quite as early and proceeds just as rapidly in the females as in the males, and the moult is practically completed before the young are born.

These conclusions differ widely from views hitherto entertained by both scientific and non-scientific writers. (Bull. Amer. Mus. Nat. Hist., 1894.)

**Zoological News.** MOLLUSCA.—The characters in the shell of *Nautilus pompilius*, described as sexual by J. Van der Hoeven, are believed by Messrs. Bather and Buckman to be due to age rather than to sex. In that case a strong point in favor of sexual dimorphism in Ammonite shells has lost its value. (Nat. Sci., Vol. VI, 1894.)

In a discussion of the geographic and hypsometric distribution of North American Viviparidæ, Mr. E. Call recognizes four genera, viz., *Tulotoma*, with two species; *Lioplax*, with two species; *Vivipara*, with four species; and *Campeloma*, with nine species. This arrangement is based upon the examination of several thousand specimens. Of these species, *Campeloma decisum* Say has the widest range and *Vivipara troostiana* the most restricted. The latter is abundant in a small stream near Murfreesboro, Tennessee, and there is no record of its being found elsewhere. Vertically, the most of the species lie between 100 and 700 feet altitude. Here again *Campeloma decisum* has the greatest range. (Am. Jur. Sci., Vol. XLVIII, 1894.)

CRUSTACEA.—A new species of *Tanaïs* (*T. robustus*) is described by Mr. H. F. Moore. It inhabits minute tubes in the crevices between the scales of the carapace of *Thalassochelys caretta*. (Proceeds. Phila. Acad. Sci., 1894.)

A blind cray-fish from Florida is described by Dr. Lönnberg under the name *Cambarus acherontis*. The specimens we obtained from a subterranean rivulet struck about 30 feet below the surface of the ground in Orange County. They represent the fourth species of *Cambarus* found in the United States. (Zool. Anz., 1894.)

VERTEBRATA.—Dr. Boulenger describes 13 new species of fresh-water fishes from Borneo. They are referred to 9 genera of which one, *Nematabramis*, is new. Three species, *Nemachilus olivaceus*, *N. saravacensis* and an *Acanthophthalmus* are of special interest as the first Cobitines described from Borneo. (Ann. Mag. Nat. Hist., Vol. XIII, 1894.)

Prof. E. D. Cope has recently published a paper on Reptiles and Batrachians from Costa Rica in which he enumerates fifteen new species, distributed as follows; 1 Urodela, 4 Salientia, 3 Lacertilia, and 7 Ophidia. Among them are two new genera; *Levirana*, identical with *Ranula*, but without vomerine teeth, and *Pogonaspis*, more nearly allied to *Tantilla* than to any other genus, but differs from it in the large single genial plate. (Proceeds., Phila. Acad., 1894.)

A preliminary list of the Reptiles and Batrachians of the Island of Trinidad prepared by Messrs. Mole and Ulrich shows a total of 76 species distributed as follows: Tortoises 6; Lizards 25; Snakes 33, Batrachians 12. Of these species 21 are recorded for the first time from the Island and two are new to science. The latter are described by Boettger under the names *Sphaerodactylus molei* and *Hylodes urichii* (Journ. Trinidad Field Naturl. Club.)

A small collection of reptiles and fishes from Lake Tanganyika examined by Dr. Gunther includes a new genus of snakes, *Glypholycus*, of which one species only is described, *G. bicolor*. Two new species of *Mastacembelus* which appear to connect the Asiatic species with the West African, and three species referred to *Chromis*. (Proceeds. London Zool. Soc., Nov., 1893.)

According to Dr. Shufeldt the fibula in many birds is complete, normally reaching the ankle-joint. He cites as examples in the Steganopodes, the Snake-bird *Plotus ankinga*, *Phalaerocorax bicristatus* (almost complete), *Sula piscator*, *S. cyanops*, *S. bassana*, *S. gossii* and *Fregata aquila*. Judging from the literature upon the subject, this fact concerning avian anatomy is not generally known. (The Ibis, July, 1894.)

Among the mammals of Baltistan and the Vale of Kashmir, presented to the U. S. Natl. Mus. by Dr. W. L. Abbott, are three species of *Arvicola*, *A. fertilis*, *A. montosa* and *A. albicanda*, which are new, and also a new geographical race of *Mus arianus*. *Sminthus concolor* in this collection extends the range of that species a thousand miles. (True in Proceeds. U. S. Natl. Mus. Vol. XVII, 1894.)

In his studies of North American Mammals Mr. F. W. True finds it necessary to place Brewer's mole in a new genus, *Parascalops*. In the same paper are given diagnoses of an undescribed race of Albert's squirrel, *S. aberti concolor*, a new lemming, *Myodes nigripes*, and a lemming-like mouse, representing a new genus, *Mictomys innuitus*. (Proceeds. U. S. Natl. Mus., 1894.)